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MEMORANDUM ON THE SATIN MOTH SITUATION IN WASHINGTON AND OREGON IN 1937

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In 1935 Mr. R. T. Webber made a survey of the State of Washington to determine the extent of satin moth infestation and the status of the parasites, both native and introduced. He found that practically the entire area west of the Cascade Range was infested. Of the introduced parasites, Apanteles solitarius was most widely distributed and effective. Meteorus versicolor and Compsilura concinnata had spread less rapidly but were abundant at several places. Rupteromalus nidulans was recovered, but this species had been too recently established to weigh its effectiveness. Of the native parasites, Tachinomyia similis was by far the most important. It was found at nearly all observation points.

During June and July 1935, Mr. J. P. Young, Mr. J. F. Bock, and Mr. C. A. Cole conducted a reconnaissance of the satin moth situation in Oregon. Infestation in this state was discovered near Gervais in August 1934 by Mr. J. A. Beal. As a result of the scouting in 1935, it was found that the satin moth was generally distributed in the Willamette Valley as far south as Albany. No infestation was located in the Rogue River Drainage. Recovery of parasites was not attempted in Oregon.

No extensive scouting has been done in Oregon or Washington, nor have any parasite counts been made since 1935. In 1937, at the request of Mr. R. C. Brown, considerable satin moth material was collected for the purpose of obtaining Tachinomyia similis for introduction into New England. A few general observations were made during the course of this work. These observations are herein recorded as a matter of record.

STATUS OF INFESTATION IN WASHINGTON

With but few exceptions, infestation was light at the places that were visited.

Puyallup and Sumner. At the Pierce County picnic grounds in Sumner (observation point 8 of Webber) where a heavy infestation on black cottonwood existed in 1935, no larvae or evidences of feeding were found on June 27, 1937. Not enough satin moth infestation existed either in Sumner or Puyallup for quantity rearing of parasites. In these towns a few years previously an outbreak had been so severe that numerous ornamental Lombardy and silver poplars had been cut to rid the premises of satin moth larvae.

Tacoma. A survey of the residential sections and parks of this city on June 27 indicated that very little infestation was present. At Point Defiance, Wright, and Lincoln Parks, where infestation had previously been heavy, no satin moth larvae were found. It is understood that the City Park Bureau has conducted

a spraying program which may have effected the reduction. Two white poplars on Tacoma Avenue, several blocks south of the business district, were about 50 percent defoliated, and a few blocks distant on Fawcet Avenue five Lombardy poplars were nearly completely defoliated.

Most of the larvae on these Lombardy poplars had reached maturity but little pupation was taking place. Many of the caterpillars hung limp and dead from twigs, branches, and tree trunks, apparently as the result of some disease. A few living larvae were collected from these trees and inadvertently mixed with rearings from Olympia. The result was that a large proportion of the host material was lost from disease, and only a few parasites were obtained. It is noteworthy that in 1935 Webber stated that no disease was noted.

Seattle. On the campus of the University of Washington ornamental white poplars were free of any evidences of infestation on July 21. These trees have been sprayed annually since they were completely defoliated a few years ago. No defoliation has occurred during the period that spraying has been in effect.

Centralia. At observation points 3 and 4 of Webber a light infestation was found June 26. One white poplar nearby was approximately 25 percent defoliated.

Longview. At Webber's observation point 27 a row of Lombardy poplars was moderately infested. On June 25 a collection of larvae

was made from these trees. No difficulty was experienced in obtaining about 200 full-grown caterpillars in an hour. Even so, when the trees were viewed from a short distance away, there was little evidence of feeding on the foliage.

Mossy Rock. Two large white poplars in a ranch yard near this village were examined on July 19. At that time cocoon formation was nearly completed. Approximately 25 percent of the foliage had been eaten considerably less than two years earlier when, according to the rancher's statement, these trees had been completely defoliated.

Olympia. This was the only place visited where satin moth caterpillars were sufficiently abundant that material could be readily obtained for the rearing of parasites. Collections of several thousand large larvae were made on June 26 and 28 from two large Lombardy poplars located along 17th Street. These poplars were almost completely defoliated. Dipterous parasitism was very heavy as indicated by the presence of eggs on the head capsules and other parts of many of the caterpillars.

The collected caterpillars were placed in rearing at Portland, Oregon. Unfortunately, because of lack of rearing facilities, about 100 caterpillars from Tacoma were combined with the Olympia material. As previously stated, a very high mortality resulted from wilt contamination. No record was kept of the

percent parasitism, for the object of the rearing was merely to obtain Tachinomyia similis puparia in the largest possible number for shipment to New Haven, Conn. Meteorus versicolor, Compsilura concinnata, and Tachinomyia similis emerged in considerable numbers, but only a few Apanteles solitarius were obtained. This latter was to be expected for Apanteles, according to Webber, attacks large larvae only to a limited extent.

All of the tachinid material, except 3 Tachinomyia and 45 Compsilura adults, was sent to New Haven. In a letter dated August 10, 1937, Mr. P. B. Dowden reports upon the two shipments as follows:

Tachinomyia similis puparia	351
Tachinomyia similis adults	3
Compsilura concinnata adults	192
Unissued dead and larviform puparia (mostly Compsilura)	114
Total	660

The following data on issuance of Meteorus and Apanteles are incomplete, but undoubtedly represent a large majority of these species that emerged.

	Meteorus versicolor	Apanteles solitarius
Females	186	26
Males	155	8
Sex not recorded	255	17
Total	596	51

In Olympia about a half mile from the 17th Street collection point two large Lombardy poplars were completely defoliated by satin moth caterpillars. On June 28 the larvae, which were not quite fully developed, were migrating for several hundred feet around these trees, apparently in search of food. It was evident that a large proportion of the caterpillars would starve, for no suitable food plants were nearby. This tendency of isolated outbreaks in residential sections to be controlled by starvation was noted in 1935 by Webber.

STATUS OF INFESTATION IN OREGON

No extension of the limits of infestation in Oregon was noted in 1937. Scouting on May 23 and June 10 in the Rogue River Valley failed to disclose the satin moth in Grants Pass, Medford, Ashland, and the surrounding territory.

Gervais. Infestation of two large white poplars at this point was discovered by J. A. Beal in August 1934, the first record of satin moth in Oregon. Defoliation of these trees was heavy in 1934, 1935, and 1936, but only a light defoliation occurred in 1937. The reduction of infestation may have been the result of parasite activity, for Apanteles solitarius and a tachinid were recovered from satin moth caterpillars at Gervais early in June. This marks the first recovery of Apanteles solitarius in Oregon. No attempt was made to determine the degree of parasitism.

Monmoth. Four miles north of Monmoth on Highway 99W a thicket of white poplars was found to be about 90 percent defoliated on July 14. An adjacent row of Lombardy poplars was untouched by the caterpillars. At the time of the examination satin moth adults were abundant in the white poplar tree tops. Egg masses were plentiful. A thorough search of the tree trunks revealed no Apanteles cocoons. Two larvae of an undetermined ~~tachinid~~ sarcophagid were taken from satin moth pupae at this point.